



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,978	01/26/2006	Tsutomu Hiroki	284892US26PCT	9448

22850 7590 08/28/2009
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

SNELTING, JONATHAN D

ART UNIT	PAPER NUMBER
----------	--------------

3652

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

08/28/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugano (JP 01-169103) in view of Yamanashi (JP 2004-9121).

3. Consider claim 1. Sugano teaches bellows (26, 27), guiding tracks (support shafts 22, 23), moving members (shape retention guide 29) with moving blocks (29b and guide holes 30) slidably and movably installed on guiding tracks (22, 23) in the bellows without being allowed to derail therefrom, and intermediate supporting members (29a) coupling the moving members and the bellows.

Sugano does not teach rollers axially supported on moving blocks. Yamanashi teaches rollers (51) axially supported on moving blocks (47) so as to slide on the guiding tracks (41, see fig. 1). It would have been obvious to a person having ordinary skill in the art to modify Sugano's moving blocks with Yamanashi's rollers in order to reduce friction.

4. Consider claim 2. Sugano teaches an upper guiding track (22) and a lower guiding track (23), which are adjacent to an inner surface of bellows (26, 27). "Upper" and "lower" designations are based on the orientation of the apparatus. When

Art Unit: 3652

Sugano's apparatus is oriented as shown in fig. 1, support shaft 22 is the upper guiding track and support shaft 23 is the lower guiding track.

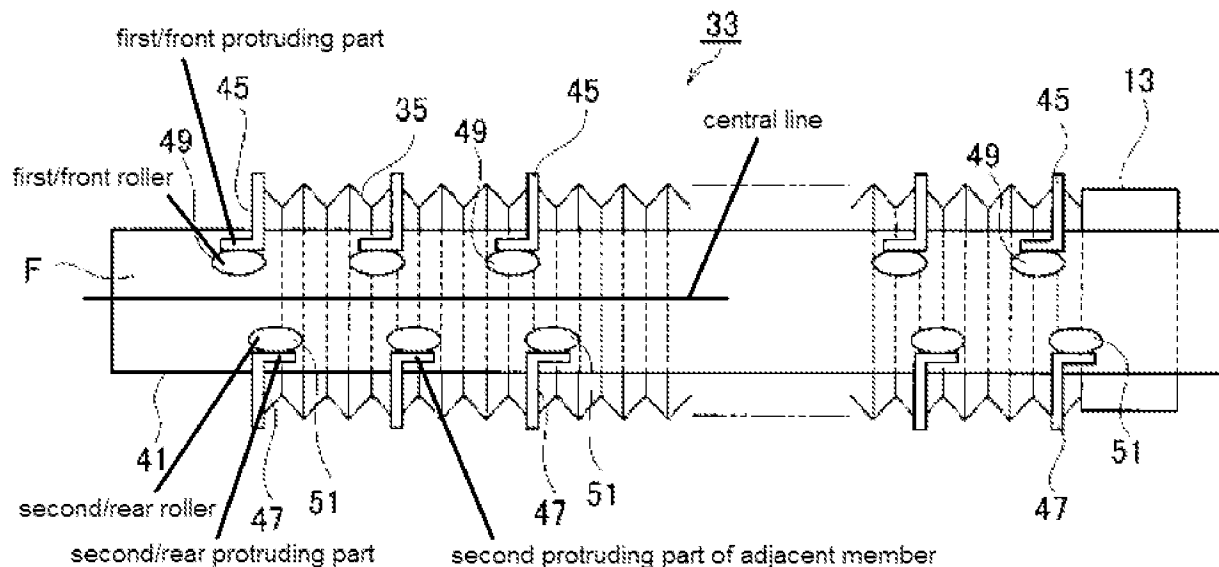
5. Consider claim 4. Sugano does not teach a guiding groove portion of the guiding tracks with a C-shaped cross section, but this is a matter of design choice. Yamanashi teaches guiding tracks (21) with a guiding groove portion with a C-shaped cross section (see fig. 4). Yamanashi teaches moving blocks (31) slidably installed on the guiding groove portion. It would have been obvious to a person having ordinary skill in the art to modify Sugano's guiding tracks with Yamanashi's C-shaped cross section in order to remove and replace one of the moving blocks in the center without removing one of the moving blocks on the end.

6. Consider claim 6. Sugano teaches plural moving members (29) that are slidable with respect to each other and have protruding parts (29b) capable of contacting with each other to set a minimum distance between the plural moving members. Sugano does not teach rollers. Yamanashi teaches rollers (51). It would have been obvious to a person having ordinary skill in the art to modify Sugano's moving blocks with Yamanashi's rollers in such a way as to prevent the rollers from contacting each other in order to prevent excessive wear on the rollers.

7. Consider claim 7. Sugano teaches protruding parts (29a), but does not teach rollers. Yamanashi teaches rollers (49, 51) mounted on protruding parts (45, 47). It would have been obvious to a person having ordinary skill in the art to modify Sugano's protruding parts with Yamanashi's rollers in order to reduce friction.

Art Unit: 3652

8. Consider claim 8. Sugano teaches protruding parts (29b) positioned at a front and a rear portion of the moving blocks, but does not teach alternately positioned protruding parts and alternately positioned front and rear rollers. Yamanashi teaches a first/front roller (49) and a second/rear roller (51) alternately positioned with respect to a central line of the moving blocks (45 and 47, see fig. 3). Yamanashi teaches first/front protruding part (45) and second/rear protruding part (47) alternately positioned with respect to the central line. Yamanashi's first protruding part of one moving member is positioned on an opposite side of the central line with respect to the second protruding part of an adjacent moving member (see fig. 3 below). It would have been obvious to a person having ordinary skill in the art to modify Sugano's protruding parts with Yamanashi's rollers and protruding parts in order to reduce friction.



9. Claims 9-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugano (JP 01-169103) in view of Yamanashi (JP 2004-9121) in view of Wentworth (Patent No. 3,731,595).

Art Unit: 3652

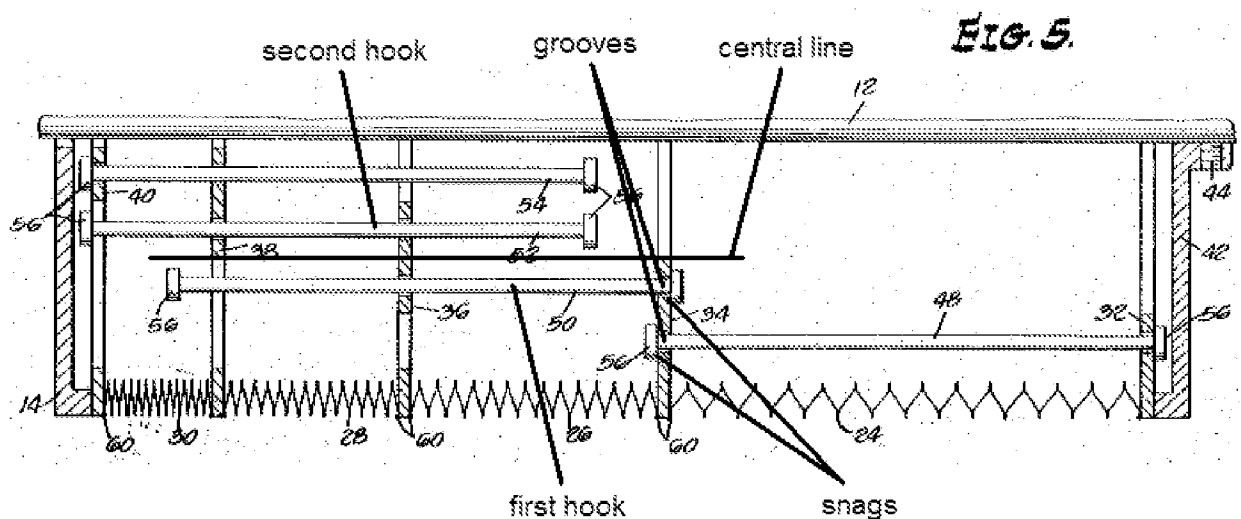
10. Consider claim 9. Sugano in view of Yamanashi teaches plural moving members (Sugano's 29) slidable with respect to each other, but does not teach coupling members. Wentworth teaches coupling members (48, 50, 52, 54) coupled with moving blocks (32, 34, 36, 38, 40) to determine a maximum distance between the plural moving members (32, 34, 36, 38, 40; see figs. 4-5). It would have been obvious to a person having ordinary skill in the art to modify the moving members of Sugano in view of Yamanashi with Wentworth's coupling members in order to set a maximum distance between the moving members to prevent the bellows from bearing an excessive tensile load in the axial direction.

11. Consider claim 10. Sugano does not teach a guiding groove portion of the guiding tracks with a C-shaped cross section, but this is a matter of design choice. Yamanashi teaches guiding tracks (21) with a guiding groove portion with a C-shaped cross section (see fig. 4). Yamanashi teaches moving blocks (31) slidably installed on the guiding groove portion. It would have been obvious to a person having ordinary skill in the art to modify Sugano's guiding tracks with Yamanashi's C-shaped cross section in order to remove and replace one of the moving blocks in the center without removing one of the moving blocks on the end.

12. Consider claims 11 and 17. Sugano in view of Yamanashi does not teach coupling members and hooks. Wentworth teaches first (34), second (36), and third (38) moving members, each having two groove portions ("inlets," see column 3, line 27 and fig. 2) and two snags (portion of disc 34, 36, 38 proximate "inlets," see fig. 5); a first hook (50, 56) for determining a maximum distance between the first (34) and second

Art Unit: 3652

(36) moving members, slidably supported in one groove portion of the first moving member and one groove portion of the second moving member (see fig. 5), and engaged by one snag of the first moving member and one snag of the second moving member (see fig. 5); and a second hook (52, 56) for determining a maximum distance between the second (36) and third (38) moving members (see fig. 5), slidably supported in the other groove portion of the second moving member and one groove portion of the third moving member (see fig. 5), and engaged by the other snag of the second moving member and one snag of the third moving member (see fig. 5). Wentworth's first and second hooks are alternately arranged with respect to a central line of the moving blocks in the axial direction (see fig. 5 below). It would have been obvious to a person having ordinary skill in the art to modify the moving members of Sugano in view of Yamanashi with Wentworth's coupling members in order to set a maximum distance between the moving members to prevent the bellows from bearing an excessive tensile load in the axial direction.



Art Unit: 3652

13. Claims 12-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga (Pub. No. 2003/0053893) in view of Sugano (JP 01-169103) in view of Yamanashi (JP 2004-9121).

14. Consider claim 12. Matsunaga teaches a movable stage device with a linear guide (84) between sidewalls (top side and bottom side of 65) in a chamber (64), a movable frame (58) movable along the linear guide, a pair of bellows (91, 92) surrounding the linear guide and extending from the movable frame to the sidewalls and forming an auxiliary space (inside bellows 91 and 92, see figs. 3-4), a driving member (motor 86, screw shaft 84, and ball screw in stage 85; see paragraph 0029) for moving the movable frame, and guiding tracks (83 and 84, see fig. 1) installed in the bellows and extending along the axial direction of the bellows.

Matsunaga does not teach moving members and intermediate supporting members. Sugano teaches bellows (26, 27), guiding tracks (support shafts 22, 23), moving members (shape retention guide 29) with moving blocks (29b and guide holes 30) slidably and movably installed on guiding tracks (22, 23) in the bellows without being allowed to derail therefrom, and intermediate supporting members (29a) coupling the moving members and the bellows. It would have been obvious to a person having ordinary skill in the art to modify Matsunaga's apparatus with Sugano's moving members and intermediate supporting members in order to stabilize the extension-contraction movement of the bellows (see Sugano's abstract).

Matsunaga in view of Sugano does not teach rollers axially supported on moving blocks. Yamanashi teaches rollers (51) axially supported on moving blocks (47) so as

Art Unit: 3652

to slide on the guiding tracks (41, see fig. 1). It would have been obvious to a person having ordinary skill in the art to modify the moving blocks of Matsunaga in view of Sugano with Yamanashi's rollers in order to reduce friction.

15. Consider claim 13. Matsunaga teaches that the chamber (antechamber 64) is a vacuum (see paragraph 0038, lines 12-13) and the auxiliary space (inside bellows 91, 92) is an atmosphere (see paragraph 0039, lines 5-9).

16. Consider claim 14. Matsunaga teaches the driving member (motor 86, screw shaft 84, and ball screw in stage 85; see paragraph 0029) is at a predetermined location in the pair of bellows (see figs. 3-4).

17. Consider claim 15. Matsunaga teaches that the movable frame (stage 85) has a horizontally protruding arm 87, but does not teach that the arm 87 is capable of bending and stretching. Matsunaga teaches a transfer arm unit (wafer transfer device 10) that is capable of bending and stretching. It would have been obvious to a person having ordinary skill in the art to modify Matsunaga's movable frame with Matsunaga's wafer transfer device in order to increase the mobility and functionality of the movable frame.

18. Consider claim 16. Matsunaga teaches a transfer chamber housing (65) connected to a processing apparatus (process room 74) for performing a semiconductor processing on the object (wafer W).

19. Consider claim 18. Matsunaga in view of Sugano teaches plural moving members (Sugano's 29) that are slidable with respect to each other and have protruding parts (Sugano's 29b) capable of contacting with each other to set a minimum distance between the plural moving members.

Art Unit: 3652

Matsunaga in view of Sugano does not teach rollers. Yamanashi teaches rollers (51). It would have been obvious to a person having ordinary skill in the art to modify the moving blocks of Matsunaga in view of Sugano with Yamanashi's rollers in such a way as to prevent the rollers from contacting each other in order to prevent excessive wear on the rollers.

Matsunaga in view of Sugano teaches protruding parts (Sugano's 29b) positioned at a front and a rear portion of the moving blocks, but does not teach alternately positioned protruding parts and alternately positioned front and rear rollers. Yamanashi teaches a first/front roller (49) and a second/rear roller (51) alternately positioned with respect to a central line of the moving blocks (45 and 47, see fig. 3). Yamanashi teaches first/front protruding part (45) and second/rear protruding part (47) alternately positioned with respect to the central line. Yamanashi's first protruding part of one moving member is positioned on an opposite side of the central line with respect to the second protruding part of an adjacent moving member (see fig. 3 above). It would have been obvious to a person having ordinary skill in the art to modify Sugano's protruding parts with Yamanashi's rollers and protruding parts in order to reduce friction.

20. Claim 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga (Pub. No. 2003/0053893) in view of Sugano (JP 01-169103) in view of Yamanashi (JP 2004-9121) in view of Wentworth (Patent No. 3,731,595).

21. Consider claim 19. Matsunaga in view of Sugano in view of Yamanashi teaches plural moving members (Sugano's 29) slidable with respect to each other, but does not teach coupling members. Wentworth teaches coupling members (48, 50, 52, 54)

Art Unit: 3652

coupled with moving blocks (32, 34, 36, 38, 40) to determine a maximum distance between the plural moving members (32, 34, 36, 38, 40; see figs. 4-5). It would have been obvious to a person having ordinary skill in the art to modify the moving members of Matsunaga in view of Sugano in view of Yamanashi with Wentworth's coupling members in order to set a maximum distance between the moving members to prevent the bellows from bearing an excessive tensile load in the axial direction.

22. Consider claims 20 and 21. Matsunaga in view of Sugano in view of Yamanashi does not teach coupling members and hooks. Wentworth teaches first (34), second (36), and third (38) moving members, each having two groove portions ("inlets," see column 3, line 27 and fig. 2) and two snags (portion of disc 34, 36, 38 proximate "inlets," see fig. 5); a first hook (50, 56) for determining a maximum distance between the first (34) and second (36) moving members, slidably supported in one groove portion of the first moving member and one groove portion of the second moving member (see fig. 5), and engaged by one snag of the first moving member and one snag of the second moving member (see fig. 5); and a second hook (52, 56) for determining a maximum distance between the second (36) and third (38) moving members (see fig. 5), slidably supported in the other groove portion of the second moving member and one groove portion of the third moving member (see fig. 5), and engaged by the other snag of the second moving member and one snag of the third moving member (see fig. 5).

Wentworth's first and second hooks are alternately arranged with respect to a central line of the moving blocks in the axial direction (see fig. 5 above). It would have been obvious to a person having ordinary skill in the art to modify the moving members of

Art Unit: 3652

Matsunaga in view of Sugano in view of Yamanashi with Wentworth's coupling members in order to set a maximum distance between the moving members to prevent the bellows from bearing an excessive tensile load in the axial direction.

Response to Arguments

23. Applicant's arguments filed 6/19/2009 have been fully considered but they are not persuasive.

24. Applicant argues that Yamanashi does not disclose moving members and rollers in the bellows. This argument is not persuasive. Yamanashi is relied upon for a teaching of moving members which include rollers, not for a teaching of moving members and rollers in the bellows.

25. Applicant argues that Yamanashi teaches away from the claimed invention. This argument is not persuasive. The mere fact that Yamanashi's rollers happen to be located outside Yamanashi's bellows does not constitute a teaching away from rollers being located in other places, including inside the bellows; and further does not prevent Yamanashi from teaching moving members which include rollers.

26. Applicant argues that Yamanashi teaches a central line for the bellows, not a central line of moving blocks. This argument is not persuasive. The central line marked in Yamanashi's fig. 3 above is clearly a central line of the moving blocks 45, 47.

27. Applicant argues that Wentworth does not teach the groove portions and snags of newly added claim 17. This argument is not persuasive. Wentworth teaches groove portions and snags as shown above in marked fig. 5.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan D. Snelting whose telephone number is 571-270-7015. The examiner can normally be reached on Monday to Friday 8:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Saúl J. Rodríguez/
Supervisory Patent Examiner, Art
Unit 3652

/Jonathan D Snelting/
Examiner, Art Unit 3652